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LITERATURE CITED

- BAKER, E. W., T. M. EVANS, D. J. GOULD, W. B. HULL, AND H. L. KEEGAN. 1967. A manual of parasitic mites of medical or economic importance. Henry Tripp, Woodhaven, New York.
- BEDARD, J. AND J. N. MCNEIL. 1979. *Protocalliphora hirudo* (Diptera: Calliphoridae) infesting Savannah Sparrow, *Passerculus sandwichensis* (Aves: Fringillidae) in eastern Quebec. Can. Entomol. 111:111-112.
- BENNETT, G. F. 1957. Studies on the genus *Protocalliphora* (Diptera: Calliphoridae). Ph.D. diss., Univ. Toronto, Toronto, Ontario, Canada.
- GARRISON, B. A., C. VOUCILAS, AND D. F. STAUFFER. 1986. Nestling Great Crested Flycatcher parasitized by larval fly (*Protocalliphora hirudo*). Wilson Bull. 98:321.
- GOLD, C. S. AND D. L. DAHLSTEN. 1983. Effects of parasitic flies (*Protocalliphora* spp.) on nestlings of Mountain and Chestnut-backed chickadees. Wilson Bull. 95:560-572.
- HALL, D. G. 1965. Calliphoridae. Pp. 922-933 in A catalog of the Diptera of America north of Mexico (A. Stone, C. W. Sabrosky, W. W. Wirth, R. H. Foote, and J. R. Coulson, eds.). Agric. Res. Serv., U.S. Dept. Agric., Washington, D.C.
- SPITZNAGEL, A. 1985. Hippoboscoid flies (Hippoboscidae, Diptera) and mites (Acari) as ectoparasites of the Dipper (*Cinclus c. aquaticus*). Ecol. Birds 7:421-422.
- WHITWORTH, T. L. 1976. Host and habitat preferences, life history, pathogenicity and population regulation in species of *Protocalliphora* Hough (Diptera: Calliphoridae). Ph.D. diss., Utah State Univ., Logan, Utah.

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Ring-necked Pheasant parasitism of Wild Turkey nests.—Ring-necked Pheasants (*Phasianus colchicus*) are facultative nest parasites of several species including Greater Prairie-Chickens (*Tympanuchus cupido*) (Simpson and Westemeier 1987), Ruffed Grouse (*Bonasa umbellus*), Northern Bobwhite (*Colinus virginianus*) (Bent 1932), Blue-winged Teal (*Anas discors*), Mallard (*A. platyrhynchos*), Northern Shoveler (*A. clypeata*) (Bennett 1936), and other Ring-necked Pheasants (Baskett 1947). Nest parasitism of Wild Turkeys (*Meleagris gallopavo*) has not been conclusively documented. I here report three instances of pheasant nest parasitism of Rio Grande Wild Turkeys (*M. g. intermedia*).

Wild Turkey habitat use was studied in the South Platte River flood plain in northeast Colorado in 1986 and 1987. Thirty-three of 35 turkey nests were in the riverbottom community, with peak nest initiation in mid-April to early May. Ring-necked Pheasants occur throughout northeastern Colorado, including riverbottom habitats, with greatest pheasant abundance in dryland wheat areas. Pheasant nest initiation normally begins in late April and early May (W. D. Snyder, pers. commun.).

On 5 May 1987, an adult turkey hen was flushed from a nest containing nine turkey eggs and one pheasant egg. All eggs were present on 25 May, and on 29 May the hen was still incubating. Visual inspection of the nest on 31 May indicated all eggs had hatched. At a second turkey nest, 11 of 12 turkey eggs and one pheasant egg hatched. Brood evasive behavior, thick understory, and similarity of turkey and pheasant chicks prohibited determination of pheasant chick survival. On 19 May 1987, a third hen was flushed from a nest containing 15 turkey eggs and one pheasant egg. On 23 May, the nest was found depredated and contained intact eggs or eggshell remains of 16 turkey eggs and one pheasant egg. The other 32 turkey nests were also inspected soon after hatching or depredation and no evidence of pheasant parasitism was found.

Assuming a 28-day incubation period for turkeys (Bailey and Rinnell 1967) and a 23-day period for pheasants (Bent 1932), the first hen was parasitized either during late egg laying or the first three days of incubation. Therefore, this pheasant egg hatched after inspection on 25 May but before the hatch of the hen's own eggs. The observation of a 16th turkey egg in the third hen's nest indicates she was parasitized during egg laying. Studies of other facultative, precocial nest parasites, primarily anatids, indicate parasitism is most common and successful during the egg-laying period of the host (e.g., Weller 1959). Incubation periods for eggs of parasitic anatids and their hosts' eggs are usually similar and result in synchronous hatching of host's and parasite's eggs. Pheasant parasitism of turkey nests during egg laying or early incubation, however, will result in asynchronous hatching due to differential incubation periods. Hatching asynchrony was observed for one nest and would have occurred in the depredated nest. Asynchronous hatching potentially is maladaptive for precocial species due to the chick's probable inaccessibility to quality brood areas under the protection of the hen. None of the turkey hens left their nest site until their own eggs hatched. Simpson and Westemeier (1987), however, observed Greater Prairie-Chicken hens leaving nest sites after single pheasant eggs hatched but before their own eggs had hatched.

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LITERATURE CITED

- BAILEY, R. W. AND K. T. RINNELL. 1967. Events in the turkey year. Pp. 73–92 in *The Wild Turkey and its management* (O. H. Hewitt, ed.). The Wildl. Soc., Washington, D.C.
- BASKETT, T. S. 1947. Nesting and production of the Ring-necked Pheasant in north-central Iowa. *Ecol. Monogr.* 17:1–30.
- BENNETT, L. J. 1936. The Ring-necked Pheasant as a nesting parasite of other game birds. *Iowa State Coll. J. Sci.* 10:373–375.
- BENT, A. C. 1932. Life histories of North American gallinaceous birds. U.S. Natl. Mus. Bull. 162.
- SIMPSON, S. AND R. L. WESTEMEIER. 1987. Pheasant control measures on prairie-chicken sanctuaries in Jasper County, Illinois. *Prairie Grouse Tech. Conf.* 17:7–8.
- WELLER, M. W. 1959. Parasitic egg laying in the Redhead (*Aythya americana*) and other North American anatidae. *Ecol. Monogr.* 29:333–365.

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